

Westbrook Energy Center	)	Department
Cumberland County	)	Findings of Fact and Order
Westbrook, Maine	)	Part 70 Air Emission License
A-743-70-A-I	)	

After review of the Initial Part 70 License application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A, Section 344 and Section 590, the Department finds the following facts:

## **I. REGISTRATION**

### **A. Introduction**

FACILITY	Westbrook Energy Center (Westbrook Energy)
LICENSE NUMBER	A-743-70-A-I
LICENSE TYPE	Initial Part 70 License
NAICS CODES	221112
NATURE OF BUSINESS	Independent electricity and steam generation
FACILITY LOCATION	Westbrook, Maine
DATE OF LICENSE ISSUANCE	August 12, 2003
LICENSE EXPIRATION DATE	August 12, 2008

### **B. Emission Equipment**

The following emission units are addressed by this Part 70 License:

<b>EMISSION UNIT ID</b>	<b>UNIT CAPACITY</b>	<b>UNIT TYPE</b>
Gas Turbine #1	1,762 MMBtu/hr <sup>1</sup>	Fuel Burning Natural gas
Gas Turbine #2	1,762 MMBtu/hr <sup>1</sup>	Fuel Burning Natural gas
Auxiliary Boiler	29.1 MMBtu/hr	Fuel Burning Natural gas
Emergency Diesel Generator	8.1 MMBtu/hr	Fuel Burning Diesel fuel
Diesel Fire Pump	3.2 MMBtu/hr	Fuel Burning Diesel Fuel

<sup>1</sup> based on -20°F ambient temperature, base load, fuel HHV to LHV of 1.109, and higher heating value of 1,000 Btu/scf.

Westbrook Energy has additional insignificant activities, which do not need to be listed in the emission equipment table above. The definition of insignificant activities may be found in the Part 70 license application and in Appendix B of Chapter 140 of the Department's Regulations.

C. Application Classification

The application for Westbrook Energy includes emission sources previously licensed under Chapter 115. Therefore the license is considered to be an Initial Part 70 License issued under Chapter 140 of the Department's regulations for a Part 70 source.

D. NOx Credits

Westbrook Energy is located in Cumberland County, which is a non-attainment region for ozone. Since NOx emission levels are above the significance levels, Westbrook Energy was required to demonstrate that emissions are meeting the requirements of Lowest Achievable Emission Rate (LAER), as well as obtain emission reduction credits for NOx.

Westbrook Energy obtained federally enforceable NOx emission reduction credits in the ratio of 1.15 to 1 prior to construction of the facility.

## II. EMISSION UNIT DESCRIPTION

A. Process Description

Westbrook Energy is a combined cycle plant operating two combined cycle systems each consisting of a combustion turbine and an unfired heat recovery steam generator (HRSG).

The combined cycle starts with combustion air entering the inlet of the gas turbine where it is compressed and mixed with the incoming fuel. This combination is burned in the combustion section of the turbine, which incorporates a dry low NOx system to minimize NOx emissions and create a high pressure, hot gas. The gas is expanded through the power section of the turbine where most of its thermal energy is converted to work as it rotates the turbine, producing electricity.

Exhaust from the turbine is directed to the HRSG where it passes over tubes to create high-pressure steam, which is then routed to the steam turbine, increasing the power output of the facility. An SCR system within the HRSG controls NOx emissions from the exhaust gases.

The combined cycle units fire only natural gas, minimizing the emission of criteria pollutants.

B. Gas Turbines #1 and #2

Gas Turbines #1 and #2 are General Electric Model number MS7001FA combustion turbines, each with a maximum heat input rating of 1,762 MMBtu/hr, firing natural gas. Each turbine has fourteen burners, and fires natural gas. The turbines are equipped with Dry Low NO<sub>x</sub> Combustors to reduce NO<sub>x</sub> emissions, and a Selective Catalytic Reduction (SCR) System to further reduce NO<sub>x</sub> emissions. Each turbine exhausts to its own 165-foot stack.

The turbines are subject to New Source Performance Standards (NSPS), 40 CFR Part 60, Subpart GG – Standards of Performance for Stationary Gas Turbines, for which construction is commenced after October 3, 1977. Subpart GG establishes the following limits:

**SO<sub>2</sub>:** (1) 0.015% by volume @ 15% O<sub>2</sub> on a dry basis, or  
(2) the fuel sulfur content shall not exceed 0.8% by weight.

**NO<sub>x</sub>:** NO<sub>x</sub> is limited based on the following equation:

$$STD = 0.0075 \cdot \left( \frac{14.4}{Y} \right) + F$$

where STD is the allowable ISO corrected NO<sub>x</sub> emissions (percent by volume at 15% O<sub>2</sub> and on a dry basis), Y is a function of the manufacturer's rated load (kilojoules per watt hour), and F is a function of the fuel-bound nitrogen.

Additionally, NSPS requires Westbrook Energy to monitor the fuel-bound nitrogen and sulfur content of the fuel for every bulk storage shipment or daily if there is no bulk storage shipment, or on an Administrator approved schedule. Westbrook Energy has received an alternative monitoring schedule, approved by EPA in a letter dated February 27, 2001, and shall perform all monitoring in accordance with 40 CFR Part 60 Subpart GG, and the alternative schedule.

Westbrook Energy was initially licensed prior to construction in December 1998. As such Westbrook Energy received a Lowest Achievable Emission Rate (LAER) determination and Best Available Control Technology (BACT) findings. This analysis ensured that the NSPS, Subpart GG standards were met. The BPT findings for the gas turbines are listed below:

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**LAER and BACT Summary for Gas Turbines #1 and #2**

<u>Pollutant</u>	<u>Control Level</u>	<u>Emission Rate</u>	<u>Control Device</u>
PM/PM <sub>10</sub>	BACT	22 lb/hr	Clean Fuel
SO <sub>2</sub>	BACT	12 lb/hr	Natural Gas
CO	BACT	15 ppm <sup>2</sup>	Good Combustion Control
VOC	BACT	3 lb/hr	Good Combustion Control
NO <sub>x</sub>	LAER	2.5 ppm <sup>2</sup> , 3-hr block avg.	DLN Combustors and SCR
ammonia	--	10 ppm <sup>2</sup> , 30-day rolling avg.	

<sup>2</sup>Corrected to 15% O<sub>2</sub>

**Streamlining**

Opacity

Westbrook Energy accepts streamlining for opacity requirements. Chapter 101, Section 2(B)(1)(a)(i) of the Department's regulations and Best Practical Treatment (BPT) requirements are applicable. The Best Practical Treatment (BPT) opacity limit is more stringent. Therefore, only the more stringent BPT opacity limit is included in this license.

Particulate Matter

Westbrook Energy accepts streamlining for particulate matter requirements. Chapter 103(2)(B)(1)(c) of the Department's regulations and BPT requirements are applicable. The BPT particulate matter limit is more stringent. Therefore, only the more stringent BPT particulate matter limit is included in this license.

Sulfur Dioxide

Westbrook Energy accepts streamlining for sulfur dioxide requirements. 40 CFR §60.333 and BPT requirements are applicable. The BPT limit is more stringent. Therefore, only the more stringent BPT sulfur dioxide limit is included in this license.

Nitrogen Oxide

Westbrook Energy accepts streamlining for nitrogen oxide requirements. 40 CFR §60.332, Chapter 138 of the Department's regulations and BPT requirements are applicable. BPT represents LAER for the gas turbines, therefore only the more stringent BPT nitrogen oxide limit is included in this license.

Periodic Monitoring

Periodic monitoring shall consist of record keeping which includes fuel bound nitrogen and sulfur content of fuel oil, sulfur content of natural gas, and continuous monitoring of NO<sub>x</sub>, CO, O<sub>2</sub> and NH<sub>3</sub> for the Cogeneration System. Westbrook Energy shall operate monitors and record the following as specified for the each of Turbines #1 and #2:

Observe for each Turbine	Monitor	Record
Turbine natural gas flow rate	Continuously	1-hr block average

Continuously is defined as a minimum of two points in a one-hour period.

C. Auxiliary Boiler

Westbrook Energy operates an Auxiliary Boiler for assistance with turbine start-up. The boiler was manufactured after June 9, 1989 with a maximum heat capacity of 29.1 MMBtu/hr, firing natural gas, thus NSPS 40 CFR Part 60 Subpart Dc applies.

The Auxiliary Boiler received a Lowest Achievable Emission Rate (LAER) determination and Best Available Control Technology (BACT) findings as part of Westbrook Energy's initial license issued December 4, 1998. The BACT findings concluded that post-combustion controls such as SCR and Selective Non-Catalytic Reduction are not practical for use on small package boilers because of the compact design configuration of the heat exchange tubes and the relatively small quantity of NOx emissions generated by such boilers. LAER for the Auxiliary Boiler is a NOx limit of 0.035 lb/MMBtu. Additionally, the boiler is equipped with Low-NOx burners and Flue Gas Recirculation.

Westbrook Energy has accepted a fuel limit for the Auxiliary Boiler of 98 MMscf/year.

**Streamlining**

Opacity

Westbrook Energy accepts streamlining for opacity requirements. Chapter 101, Section 2(B)(1)(a)(i) of the Department's regulations and Best Practical Treatment (BPT) requirements are applicable. The Best Practical Treatment (BPT) opacity limit is more stringent. Therefore, only the more stringent BPT opacity limit is included in this license.

Particulate Matter

Westbrook Energy accepts streamlining for particulate matter requirements. Chapter 103(2)(B)(1)(a) of the Department's regulations and BPT requirements are applicable. The BPT particulate matter limit is more stringent. Therefore, only the more stringent BPT particulate matter limit is included in this license.

Periodic Monitoring

Periodic monitoring shall consist of fuel records maintained on a monthly and 12 month rolling basis.

D. Emergency Diesel Generator

Westbrook Energy operates an emergency diesel generator set to provide back-up electricity for facility lighting. The generator has a maximum heat input of 8.1 MMBtu/hr, firing distillate oil not to exceed a sulfur content of 0.05% by weight. It is limited to 275 hours/year of operation, on a 12-month rolling total.

Add-on controls have not been used in practice due to the limited operation of an emergency unit, and added complications in maintenance, as with combustion controls such as timing retard which adversely affect engine start up reliability. Generator operation with low sulfur fuel and restricted hours of operation have been determined to meet LAER for NO<sub>x</sub> and BACT for all other regulated pollutants, and also represent BPT for this license.

E. Diesel Fire Pump

Westbrook Energy operates a diesel fire pump for emergency fire fighting. The Fire Pump has a maximum heat input of 3.2 MMBtu/hr, firing distillate oil not to exceed a sulfur content of 0.05% by weight. It is limited to 200 hours/year of operation on a 12-month rolling total.

Add-on combustion controls are not warranted to control emissions from the Diesel Fire Pump. Operation with low sulfur fuel and restricted hours of operation have been determined to meet LAER for NO<sub>x</sub> and BACT for all other regulated pollutants, and also represent BPT for this license.

F. Annual Facility Emissions

Annual facility emissions are calculated based on continuous operation of the Gas Turbines, 98 MMscf/year of natural gas fired in the Auxiliary Boiler, 275 hours/year of operation for the Emergency Generator and 200 hours/year for the Emergency Diesel Fire Pump. The ton/year limits are calculated based on manufacturer data and assume the following operating conditions for the turbines:

- Temperature: 45°F
- Relative Humidity: 60%
- Sulfur Content of Natural Gas: 2.0 gr/1000 scf
- NH<sub>3</sub> Slip Concentration: 10 ppm<sub>dv</sub>
- Fuel Bound Nitrogen: less than 0.015%
- NO<sub>x</sub> Concentration: 2.5 ppm @ 15% O<sub>2</sub>

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**Total Allowable Annual Emissions for the Facility**  
(used to calculate the license fee)

<b>Pollutant</b>	<b>Turbines</b>	<b>Aux. Boiler</b>	<b>Emergency Generator</b>	<b>Emergency Fire Pump</b>	<b>Cooling Tower</b>	<b>Tons/Year</b>
PM	192.72	0.49	0.11	0.04	12.3	205.7
PM <sub>10</sub>	192.72	0.49	0.11	0.04	12.3	205.7
SO <sub>2</sub>	87.6	0.05	0.06	0.02	--	87.73
NO <sub>x</sub>	150.67	1.72	3.520	1.390	--	157.3
CO	429.24	7.41	0.94	0.300	--	437.9
VOC	24.52	0.98	0.09	0.01	--	25.6
NH <sub>3</sub>	188.3	--	--	--	--	188.3

**III. AIR QUALITY ANALYSIS**

Westbrook Energy previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. An additional ambient air quality analysis is not required for this Initial Part 70 License.

**ORDER**

Based on the above Findings and subject to conditions listed below, the Department concludes that emissions from this sources:

- will receive Best Practical Treatment;
- will not violate applicable emissions standards;
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants the Part 70 License A-743-70-A-I pursuant to MEDEP Chapter 140 and the pre-construction permitting requirements of MEDEP Chapter 115 and subject to the standard and special conditions below.

All federally enforceable and State-only enforceable conditions in existing air licenses previously issued to Westbrook Energy pursuant to the Department's pre-construction permitting requirements in Chapters 108 or 115 have been incorporated into this Part 70 license, except for such conditions that MEDEP has determined are obsolete, extraneous or otherwise environmentally insignificant, as explained in the findings of fact accompanying this permit. As such the conditions in this license supercede all previously issued air license conditions.

Federally enforceable conditions in this Part 70 license must be changed pursuant to the applicable requirements in Chapter 115 for making such changes and pursuant to the applicable requirements in Chapter 140.

For each standard statement or condition and each specific condition which is state enforceable only, state-only enforceability is designated with the following statement: **Enforceable by State-only.**

### Standard Statements

- (1) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both;
- (2) The Part 70 license does not convey any property rights of any sort, or any exclusive privilege;
- (3) All terms and conditions are enforceable by EPA and citizens under the CAA unless specifically designated as state enforceable.
- (4) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license;
- (5) Notwithstanding any other provision in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement.
- (6) Compliance with the conditions of this Part 70 license shall be deemed compliance with any Applicable requirement as of the date of license issuance and is deemed a permit shield, provided that:
  - A. Such Applicable and state requirements are included and are specifically identified in the Part 70 license, except where the Part 70 license term or condition is specifically identified as not having a permit shield; or
  - B. The Department, in acting on the Part 70 license application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the Part 70 license includes the determination or a concise summary, thereof.



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Nothing in this section or any Part 70 license shall alter or effect the provisions of Section 303 of the CAA (emergency orders), including the authority of EPA under Section 303; the liability of an owner or operator of a source for any violation of Applicable requirements prior to or at the time of permit issuance; or the ability of EPA to obtain information from a source pursuant to Section 114 of the CAA.

SOURCE	CITATION	DESCRIPTION	BASIS FOR DETERMINATION
Facility	40 CFR Part 60 Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Westbrook Energy does not operate Boilers > 100 MMBtu/hr

- (7) The Part 70 license shall be reopened for cause by the Department or EPA, prior to the expiration of the Part 70 license, if:
- A. Additional Applicable requirements under the CAA become applicable to a Part 70 major source with a remaining Part 70 license term of 3 or more years. However, no opening is required if the effective date of the requirement is later than the date on which the Part 70 license is due to expire, unless the original Part 70 license or any of its terms and conditions has been extended pursuant to Chapter 140;
  - B. Additional requirements (including excess emissions requirements) become applicable to a Title IV source under the acid rain program. Upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the Part 70 license;
  - C. The Department or EPA determines that the Part 70 license contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the Part 70 license; or
  - D. The Department or EPA determines that the Part 70 license must be revised or revoked to assure compliance with the applicable requirements.

The licensee shall furnish to the Department within a reasonable time any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the Part 70 license or to determine compliance with the Part 70 license.

- (8) No license revision or amendment shall be required, under any approved economic incentives, marketable licenses, emissions trading and other similar programs or processes for changes that are provided for in the Part 70 license.

## STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions and this license (Title 38 MRSA §347-C);
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 140;
- (3) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request; **Enforceable by State-only**
- (4) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 MRSA §353.
- (5) The licensee shall maintain and operate all emission units and air pollution control systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions; **Enforceable by State-only**
- (6) The licensee shall retain records of all required monitoring data and support information for a period of at least six (6) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the Part 70 license. The records shall be submitted to the Department upon written request or in accordance with other provisions of this license;
- (7) The licensee shall comply with all terms and conditions of the air emission license. The submission of notice of intent to reopen for cause by the Department, the filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for the renewal of a Part 70 license or amendment shall not stay any condition of the Part 70 license.
- (8) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

- A. perform stack testing under circumstances representative of the facility's normal process and operating conditions:
  - 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions;
  - 2. to demonstrate compliance with the applicable emission standards; or
  - 3. pursuant to any other requirement of this license to perform stack testing.
- B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
- C. submit a written report to the Department within thirty (30) days from date of test completion.

**Enforceable by State-only**

- (9) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicates emissions in excess of the applicable standards, then:
  - A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
  - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
  - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

**Enforceable by State-only**

(10) The licensee shall maintain records of all deviations from license requirements. Such deviations shall include, but are not limited to malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emission unit itself that is not consistent with the terms and conditions of the air emission license.

A. The licensee shall notify the Commissioner within 48 hours of a violation in emission standards and/or a malfunction or breakdown in any component part that causes a violation of any emission standard, and shall report the probable cause, corrective action, and any excess emissions in the units of the applicable emission limitation;

B. The licensee shall submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component part causes a violation of any emission standard, together with any exemption requests.

Pursuant to 38 MRSA § 349(9), the Commissioner may exempt from civil penalty an air emission in excess of license limitations if the emission occurs during start-up or shutdown or results exclusively from an unavoidable malfunction entirely beyond the control of the licensee and the licensee has taken all reasonable steps to minimize or prevent any emission and takes corrective action as soon as possible. There may be no exemption if the malfunction is caused, entirely or in part, by poor maintenance, careless operation, poor design or any other reasonably preventable condition or preventable equipment breakdown. The burden of proof is on the licensee seeking the exemption under this subsection.

C. All other deviations shall be reported to the Department in the facility's semiannual report.

(11) Upon the written request of the Department, the licensee shall establish and maintain such records, make such reports, install, use, and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. **Enforceable by State-only**

(12) The licensee shall submit semiannual reports of any required periodic monitoring. All instances of deviations from Part 70 license requirements must be clearly identified in such reports. All required reports must be certified by a responsible official.

- (13) The licensee shall submit a compliance certification to the Department and EPA at least annually or more frequently if specified in the applicable requirement or by the Department. The compliance certification shall include the following:
- A. The identification of each term or condition of the Part 70 license that is the basis of the certification;
  - B. The compliance status;
  - C. Whether compliance was continuous or intermittent;
  - D. The method(s) used for determining the compliance status of the source, currently and over the reporting period; and
  - E. Such other facts as the Department may require to determine the compliance status of the source;

### **SPECIFIC CONDITIONS**

- (14) The following shall apply to the conditions in this order as appropriate, unless it is stated otherwise for such unit [Chapter 140]:
- A. A 24-hour block average basis shall be calculated as the arithmetic average of not more than 24 and not less than 8 one (1) hour block average periods. Only one 24-hour block average shall be calculated for one day, beginning at midnight. Any hour that has been impacted by a start-up or shut down shall not be included in the 24-hour block average. This refers to the ppm limits of Condition 15(A).
  - B. A 3-hour block average basis shall be calculated at the arithmetic average of not more than 3 one (1) hour block average periods. No more than eight 3-hour block averages shall be calculated for one day. One 3-hour block average shall be calculated for the period from midnight to 3:00 a.m., one from 3:00 a.m. to 6:00 a.m., one from 6:00 a.m. to 9:00 a.m., etc. Any hour that has been impacted by a start-up or shut down shall not be included in the 3-hour block average.
  - C. A 30-day rolling average basis shall be calculated as the arithmetic average of not more than 30 twenty-four (24) hour block averages, made up of data from 30 consecutive operating days.
  - D. A 6-minute block average basis shall be calculated as the arithmetic average of 24 consecutive fifteen-second block average periods. No more than 10 six-minute block averages shall be calculated for any one-hour period.

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(15) Turbines #1 and #2

- A. Turbines #1 and #2 shall fire natural gas and vent through separate 165-foot tall stacks. Emissions from each combustion turbine shall not exceed the following limits, except during turbine start-up and shutdown:

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	Ammonia	
ppmdv (corrected to 15% O <sub>2</sub> )	--	--	--	2.5	15	--	10	20
ppmdv averaging time	--	--	--	3-hr block	24-hr block	--	30 day rolling	24-hr block
lb/hr	22	22	12	18	53	3	--	--
Control Technology	Nat gas	Nat gas	Nat gas	DLN & SCR	Good combustion control	Good combustion control	--	

[MEDEP Chapter 140]

- B. Compliance with the particulate matter lb/hr limits shall be demonstrated on request of the Department through stack testing in accordance with EPA Test Method 5 found in 40 CFR 60, Appendix A. [MEDEP Chapter 140, BPT]
- C. Compliance with the SO<sub>2</sub> lb/hr limit shall be demonstrated by restricting the turbines to fire pipeline quality natural gas as defined by NSPS Subpart GG, and recording the hourly fuel flow rate on a one (1) hour block average basis. [MEDEP Chapter 140, BPT]
- D. Westbrook Energy shall calibrate, test, operate and maintain a Data Acquisition System (DAS) and stack CEMS to measure and record NO<sub>x</sub> and CO ppmdv and lb/hr emissions, and O<sub>2</sub> concentrations from each turbine. NO<sub>x</sub> ppmdv emissions shall be recorded on a three hour block averaging period, as defined in Condition (14)(B) of this license. CO ppmdv emissions shall be recorded on a 24 hour block averaging period, as defined in Condition (14)(A) of this license. [MEDEP Chapter 140, BPT]
- E. Westbrook Energy shall operate the turbines with selective catalytic reduction (SCR) systems to reduce NO<sub>x</sub> emissions from the turbines, except during start-up and shutdown. The turbines shall not be operated without Dry Low NO<sub>x</sub> Combustors. [MEDEP Chapter 140, BPT]
- F. Compliance with the VOC lb/hr limit shall be demonstrated on request of the Department through stack testing in accordance with EPA Test Methods 18 and 25A found in 40 CFR 60, Appendix A. [MEDEP Chapter 140, BPT]

- G. Westbrook Energy shall calibrate, test, operate and maintain a DAS and a stack CEMS to measure and record NH<sub>3</sub> ppmdv emissions on 24 hour block and 30 day rolling average bases as defined in Conditions (14)(A) and (14)(C), respectively, of this license. [MEDEP Chapter 140, BPT]
- H. Visible emissions from each turbine shall not exceed the following, except during turbine start-up and shutdown conditions: 20% opacity on a six (6) minute block average basis, except for 1 six (6) minute block average period per hour of not more than 27% opacity. Compliance with the visible emission limit for the turbines shall be demonstrated in accordance with EPA Test Method 9 found in 40 CFR 60, Appendix A. [MEDEP Chapter 140, BPT]
- I. Westbrook Energy shall minimize emissions from the gas turbines to the maximum extent practicable during start-up and shutdown, under maintenance or adjustment conditions, and during equipment cleaning conditions. [Chapter 140, BPT]
- J. Westbrook Energy is required to monitor the composition of the fuel fired in the turbines per 40 CFR 60 Subpart GG or Administrator approved alternative schedule. In a letter dated February 27, 2001, EPA granted an alternative fuel monitoring schedule for Westbrook Energy. Fuel monitoring at the facility shall be conducted according to EPA's letter and Subpart GG, on the following schedule:
1. Sulfur monitoring is not required per 40 CFR 60 §60.334(h)(3), if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(v) by either of the methods described in §60.334(h)(3).
  2. WEC is not required to monitor nitrogen content in their fuel per EPA's letter of February 27, 2001, provided they are supplied with solely pipeline quality natural gas, as defined in 40 CFR 60 §60.331(v).
- K. The following conditions shall apply to start-up and shut down procedures [Chapter 140, BPT]:
1. Turbine start-up shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches 50% baseload and the steam turbine is declared available for load changes. Start-up shall be completed as soon as practicable, but in no case shall the period exceed 300 minutes. Westbrook Energy shall track and record all start-up times and durations. Records on start-ups lasting longer than 240 minutes shall include an explanation of the circumstances that led to the longer start-up.

2. A turbine shutdown shall be defined as that period of time from steady state operation to cessation of combustion turbine firing. This period shall not exceed 60 minutes. Westbrook Energy shall track and record all shut down times and durations.
3. Emission limits from each combustion turbine shall not exceed the following during turbine start-up and shutdown:

Pollutant	Limit	Average Time
NOx	160 lb/hr	24-hour block average
CO	200 lb/hr	24-hour block average

4. Visible emissions from each turbine during start-up and shut down conditions shall not exceed the following: 30% opacity on a six-minute block average basis.
  5. The monitored NOx and CO lb/hr emissions shall be demonstrated on a 24-hour block average basis, and shall not exceed the emission limits listed in Condition (15)(K)(3), for each turbine that is operating in a start-up or shutdown condition. For the purposes of calculating this average, 24 hours shall be defined as the period between 12:00 AM and 11:59 PM, during which start-up(s) and/or shut down(s) have taken place.
  6. Compliance with the start-up and shutdown opacity limit shall be demonstrated in accordance with EPA reference Method 9 on a six minute block average, as defined in Condition (14)(D) of this license, and shall not exceed the limit listed in Condition (15)(K)(4), for each turbine that is operating in a start-up or shutdown condition.
  7. The mass emission limits listed in Condition (15)(K)(3) shall apply to that specific turbine during turbine start-up or shutdown.
- L. Westbrook Energy shall continuously monitor the natural gas flow rate to the turbines and record the flow rate on a one-hour block average basis.
- M. The emission limits contained in this permit do not apply if the facility, during an electricity supply emergency, is directed by Independent System Operator - New England (ISO-NE) to operate at low loads such that the SCR cannot operate due to unstable temperatures. During such operation, Calpine will use its best efforts to minimize air emissions, and shall operate the SCR as soon as it is practical once temperatures stabilize.



(16) Auxiliary Boiler [MEDEP Chapter 140, BPT]

- A. Fuel use in the Auxiliary Boiler shall not exceed 98 MMScf/year based on a 12 month rolling total. Westbrook Energy shall maintain fuel records on a monthly and 12-month rolling basis. The boiler shall be operated with natural gas only.
- B. Westbrook Energy shall operate the Auxiliary Boiler with Low-NOx Burners and Flue Gas Recirculation.
- C. Westbrook Energy shall comply with all applicable requirements of NSPS 40 CFR Part 60, Subpart Dc.
- D. Emissions from the Auxiliary Boiler shall not exceed the following:

Pollutant	lb/MMBtu	lb/hr
PM	0.01	0.29
PM <sub>10</sub>	--	0.29
SO <sub>2</sub>	--	0.03
NO <sub>x</sub>	0.035	1.02
CO	--	4.4
VOC	--	0.58

Compliance shall be demonstrated on request of the Department through stack testing in accordance with the appropriate method found in 40 CFR Part 60, Appendix A.

- E. Visible emissions from the Auxiliary Boiler shall not exceed 20% opacity on a 6 minute block average, except for no more than two six (6) minute block averages in a 3 hour period. Compliance with the opacity limit for the Auxiliary Boiler shall be demonstrated through EPA Test Method 9 found in 40 CFR Part 60, Appendix A.

(17) Emergency Diesel Generator [MEDEP Chapter 140, BPT]

- A. The Emergency Diesel Generator shall be limited to no more than 275 hours of operation per year, on a 12 month rolling total. The generator shall only be operated during emergency facility power outage periods and short intervals to exercise the engine and ensure its working order. Compliance shall be demonstrated through an hour meter operated and maintained on the generator, and a log maintained by Westbrook Energy of the dates, times and reason for operation each time the generator is fired.
- B. The Emergency Generator shall fire distillate oil with a maximum sulfur content not to exceed 0.05% by weight.

C. Emissions from the Emergency Generator shall not exceed the following:

Pollutant	lb/MMBtu	Lb/hr
PM	0.12	0.81
PM <sub>10</sub>	--	0.81
SO <sub>2</sub>	--	0.41
NO <sub>x</sub>	--	25.6
CO	--	6.80
VOC	--	0.64

Compliance shall be demonstrated on request of the Department through stack testing in accordance with the appropriate method found in 40 CFR Part 60, Appendix A.

D. Visible emissions from the Emergency Generator shall not exceed 20% opacity on a 6-minute block average. Compliance with the opacity limit for the Auxiliary Boiler shall be demonstrated through EPA Test Method 9 found in 40 CFR Part 60, Appendix A.

(18) Diesel Fire Pump

A. The Diesel Fire Pump shall be limited to 200 hours of operation per year, on a 12 month rolling total. The generator shall only be operated for facility fire fighting and short intervals to exercise the engine and insure its working order. Compliance shall be demonstrated through an hour meter operated and maintained on the fire pump, and a log maintained by Westbrook Energy of the dates, times and reason for operation each time the pump is operated.

B. The Diesel Fire Pump shall fire distillate oil with a maximum sulfur content not to exceed 0.05% by weight.

C. Emissions from the Diesel Fire Pump shall not exceed the following:

Pollutant	Lb/MMBtu	lb/hr
PM	0.12	0.37
PM <sub>10</sub>	--	0.37
SO <sub>2</sub>	--	0.16
NO <sub>x</sub>	--	13.9
CO	--	3.00
VOC	--	0.11

Compliance shall be demonstrated on request of the Department through stack testing in accordance with the appropriate method found in 40 CFR Part 60, Appendix A.

- D. Visible emissions from the Diesel Fire Pump shall not exceed 20% opacity on a 6-minute block average. Compliance with the opacity limit for the Auxiliary Boiler shall be demonstrated through EPA Test Method 9 found in 40 CFR Part 60, Appendix A.
- (19) **Annual Emission Limits**  
WEC shall not exceed the following emission limits, on a 12-month rolling total:

Pollutant	Tons/year
PM	205.7
PM <sub>10</sub>	205.7
SO <sub>2</sub>	87.7
NO <sub>x</sub>	157.3
CO	437.9
VOC	25.6
NH <sub>3</sub>	188.3

- Compliance shall be demonstrated through records showing emissions on a monthly basis and a 12-month rolling total basis.
- (20) **Record Keeping Requirements** [MEDEP Chapters 140, MEDEP Chapter 117]  
For all record keeping required by this license, the licensee shall maintain records of the most current six-year period:

**A. Periodic Monitoring Records**

The following records shall be maintained:

1. For Turbines #1 and #2:  
Sulfur content of the fuel being fired in each turbine according to the custom fuel-monitoring schedule outlined in Condition 15(J) of this license.
2. For the Emergency Generator and the Diesel Fire Pump:  
The dates, times and reason of operation each time either unit is operated.
3. For the Auxiliary Boiler:  
Fuel use on a monthly and twelve month rolling basis.

**B. Parameter Monitoring Records**

The following records shall be maintained for Turbines #1 and #2:

Natural gas flow to the turbines measured continuously and recorded on an hourly block average.

These records shall consist of documentation which shows fuel flow rate status during all source operating time, including calibration and audits; and a complete data set of all monitored fuel flow rates, as specified in this license. All records shall be made available to the Department upon request.

**C. Start Up and Shut Down**

Westbrook Energy shall keep records of start-up and shutdown to document that time limits for unit starts and shutdowns are not exceeded.

**D. CEMS Records**

The CEMS at Westbrook Energy include:

NO<sub>x</sub>, CO, O<sub>2</sub> and NH<sub>3</sub> CEMS for each Turbine stack #1 and #2. Westbrook Energy shall operate a DAS to comply with the monitoring requirements of 40 CFR 60.

The following records shall be kept for the CEMS at Westbrook Energy:

- A. Documentation that all CEMS are continuously accurate, reliable and operated in accordance with Chapter 117, 40 CFR Part 51, Appendix P, 40 CFR Part 60.13 and 40 CFR Part 60, Appendices B and F, all applicable portions of 40 CFR Parts 72 and 75, and 40 CFR Part 52.1020(c)(24);
- B. Records of all measurements, performance evaluations, calibration checks and maintenance or adjustments for each CEMS as required by 40 CFR Part 51 Appendix P;
- C. A report or other data indicative of compliance with the applicable emission standard for those periods when the CEMS were not in operation or produced invalid data. In the event the Department does not concur with the licensee's compliance determination, the licensee shall, upon the Department's request, provide additional data, and shall have the burden of demonstrating that the data is indicative of compliance with the applicable standard. [MEDEP Chapter 117]

**(21) Parameter Monitor Uptime**

Each parameter monitor specified in 19(B) must record accurate and reliable data. If the parameter monitor is recording accurate and reliable data less than 98% of the source operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control procedures or unavoidable malfunctions. [ME DEP, Chapter 140, BPT]

**Enforceable by State-only**

**(22) Quarterly Reporting**

The licensee shall submit a Quarterly Report to the Bureau of Air Quality within 30 days after the end of each calendar quarter, detailing the following, for the control equipment, parameter monitors, or Continuous Emission Monitoring Systems (CEMS) required by this license. [MEDEP Chapter 117]

- A. All control equipment downtime and malfunctions;  
Control equipment includes:
  - 1. Dry Low-NOx Combustors on each Turbine #1 and #2;
  - 2. SCR Systems operating on emissions from each Turbine #1 and #2;
- B. All CEMS downtime and malfunctions;
- C. All parameter monitors downtime and malfunction;
- D. All excess events of emission and operational limitations set by this Order, Statute, state or federal regulations, as appropriate. The following information shall be reported for each excess event;
  - 1. standard exceeded;
  - 2. date, time and duration of excess event;
  - 3. maximum and average values of the excess event, reported in the units of the applicable standard, and copies of pertinent strip charts and printouts when requested;
  - 4. a description of what caused the excess event;
  - 5. the strategy employed to minimize the excess event;
  - 6. the strategy employed to prevent recurrence.
- E. A report certifying that there were no excess emissions, if such is the case.

(23) **Semiannual Reporting**

The licensee shall submit semiannual reports every six months to the Bureau of Air Quality. The semiannual reports are due with every other quarterly report, and the initial semiannual report is due July 31, 2003. [MEDEP Chapter 140]

- A. Each semiannual report shall include a summary of the periodic monitoring required by Condition (19)(A) of this license.
- B. All instances of deviations from license requirements and the corrective action taken must be clearly identified and provided to the Department in summary form for each six-month interval.  
[MEDEP Chapter 140]

(24) **Annual Compliance Certification**

Westbrook Energy shall submit an annual compliance certification to the Department in accordance with Standard Condition (13) of this license. The initial annual compliance certification is due January 31, 2004. [MEDEP Chapter 140]

(25) **Annual Emission Statement**

In accordance with MEDEP Chapter 137, the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:

- A. A computer program and accompanying instructions supplied by the Department; or

Westbrook Energy Center  
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- B. A written emission statement containing the information required in MEDEP Chapter 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator  
Maine DEP  
Bureau of Air Quality  
17 State House Station  
Augusta, ME 04333-0017

Phone: (207) 287-2437

The emission statement must be submitted by September 1 or within 60 days of Department notification by mail.

- (26) The licensee is subject to the State regulations listed below.

<b><u>Origin and Authority</u></b>	<b><u>Requirement Summary</u></b>
Chapter 101	Visible Emissions Regulations
Chapter 102	Open Burning
Chapter 103	Fuel Burning Equipment Particulate Emission Standard
Chapter 106	Low Sulfur Fuel Regulation
Chapter 109	Emergency Episode Regulation
Chapter 110	Ambient Air Quality Standard
Chapter 113	Growth Offset Regulation
Chapter 114	Classification of Air Quality Control Regions
Chapter 116	Prohibited Dispersion Techniques
Chapter 117	Source Surveillance
Chapter 137	Emission Statements
Chapter 138	NOx RACT

- (27) A. The licensee shall comply with the applicable requirements of the Federal Acid Rain Program found in 40 CFR Parts 72, 73, 75, 77 and 78. [40 CFR Parts 72, 75, 77 and 78.]
- B. Westbrook Energy shall obtain and hold in the EPA allowance Management System, sufficient Acid Rain allowances for each ton of SO<sub>2</sub> emitted annually in accordance with the requirements of 40 CFR Parts 72, 73, 75, and 78. [40 CFR Parts 72, 73, 75 and 78]
- (28) The licensee is subject to all applicable requirements of 40 CFR Part 82, Subpart F (Refrigerant Control).

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- (29) The licensee is subject to all applicable requirements of 40 CFR Part 68 (Risk Management Plan) and Westbrook Energy shall comply with federal accidental release program requirements for aqueous and anhydrous ammonia codified in the same part.
- (30) The licensee is subject to all applicable requirements of federal new source performance standards 40 CFR Part 60 Subparts A and GG.
- (31) **Certification by a Responsible Official**  
All reports (including quarterly reports, semiannual reports, and annual compliance certifications) required by this license to be submitted to the Bureau of Air Quality must be signed by a responsible official. [MEDEP Chapter 140]
- (32) Westbrook Energy shall pay the annual air emission license fee within 30 days of December 31 of each year. Pursuant to 38 MRSA §353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 MRSA §341-D, subsection 3.
- (33) The term of this license shall be five (5) years from the signature date below.

DONE AND DATED IN AUGUSTA, MAINE THIS       DAY OF       2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_  
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: **November 6, 2001**

Date of application acceptance: **November 7, 2001**

Date filed with the Board of Environmental Protection \_\_\_\_\_

This Order prepared by Rachel E. Pilling, Bureau of Air Quality.